• COLORADO RIVER •

AQUEDUCT NEWS

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Vol. V APRIL 25, 1938 No. 8

THE LAST OPEN WORK

This conduit construction, under the Southern Pacific R. R. south of Cabazon, marks the end of open work construction on the main aqueduct.

• COLORADO RIVER •
AQUEDUCT NEWS
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
306 West Third St.
Los Angeles, California

Published twice monthly in the interest of Field and Office Workers on the Colorado River Aqueduct, and for the information of all other citizens of the Metropolitan Water District.

Vol. V April 25, 1938 No. 8

Intake, Gene, and Eagle Contracts Near Completion

Contract work is nearly completed on the five aqueduct pumping plants which will ultimately lift a billion gallons of water a day a total height of 1617.9 feet. Latest progress reports from the field indicate that notices of completion will be filed in the very near future on the Intake, Gene Wash, and Eagle Mountain plants. Contract work on the Iron Mountain plant was completed on September 1, 1937. The only remaining plant construction is at Hayfield, which was 90 per cent completed on April 23.

Winston Brothers Co. and Wm. C. Crowell have the contract for the Intake and Gene plants. This work includes the construction of the pumping plant buildings themselves, and various appurtenant works. One of the principal features of the latter item has been the erection of the steel delivery lines. Subcontracted to the Consolidated Steel Corp., there is a total of 2,707 feet of 10-ft. diameter, and 880 feet of 6-ft. diameter line. The smaller lines run from the pumps to a junction with the main 10-ft. line. This main line at Intake is 691 feet long, and is 2,016 feet long at Gene. The total lift at the latter plant is 303 feet while the lift at Intake is 291 feet.

R. A. Crowell, superintendent, and F. T. Hillman, engineer, have been in charge of this work for the contractor. T. T. Walsh is construction superintendent for the District. Approximately 57,600 cubic yards of concrete were placed and 4,700 tons of steel were erected at these two plants.

The Eagle Mountain plant, which is approximately 110 miles west of the Colorado River by way of the aqueduct, is being constructed by the L. E. Dixon Co., with J. H. Larkin as superintendent. This job is being completed under

(*Continued on Page* 8)

The steel delivery line at the Hayfield pumping plant goes over the first "hump" in the 442-foot lift.

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SUPERINTENDENTS OF CONSTRUCTION PUMPING PLANTS
Intake and Gene.....T. T. Walsh
Iron Mt.....B. H. Martin
Eagle Mt. and Hayfield.....R. C. Booth

SUPERINTENDENTS
(Main Aqueduct Tunnels)
San Jacinto Tunnel, District Force Acct., B. C. Leadbetter, Gen. Supt.; S. J. Shrode, John Austin and C. E. Sides, Tunnel Supts.; Chas. F. Thomas, Jr., Edwin Noon, Supts.; F. A. Backman, Gen. Foreman.

(Distribution Tunnels)
Monrovia Tunnels Nos. 1, 2 and 3, West Construction Co., H. E. Carleton, Gen. Supt.; E. M. Penn, Concrete Supt.

Monrovia Tunnel No. 4, L. E. Dixon Co., Bent Bros., Inc., and Johnson, Inc., W. N. Evans, Supt.

(Canal, Siphon, Conduit)
Schedules Nos. 14, 15 and 16, Thompson - Starrett Co., Inc., Rodney Smith, Gen. Supt.; V. H. Wiese, Engineer.

Schedules Nos. 18, 19 and 20, J. F. Shea Co., Inc., Gilbert J. Shea, Gen. Mgr.; H. F. Rennebohm, Supt.

(Distribution Pipe Line)
Schedules 6P and 7P, J. F. Shea Co., Inc., Gilbert J. Shea, Gen. Mgr.; Ed H. Shea, Gen. Supt.

Schedules 9P, 10P, 11P, United Concrete Pipe Corp., John Huber, Plant Supt.; Roy Richards, Construction Supt.

Schedules 8C, 9C, 12C, Basich Bros.; Dick Noble, Supt.

Schedules 21SC, 22SC, 23SC, J. F. Shea Co., Gilbert J. Shea, Supt.

(Dams)
Cajalco dam, The Griffith Co., Franz Fohl, Gen. Supt.

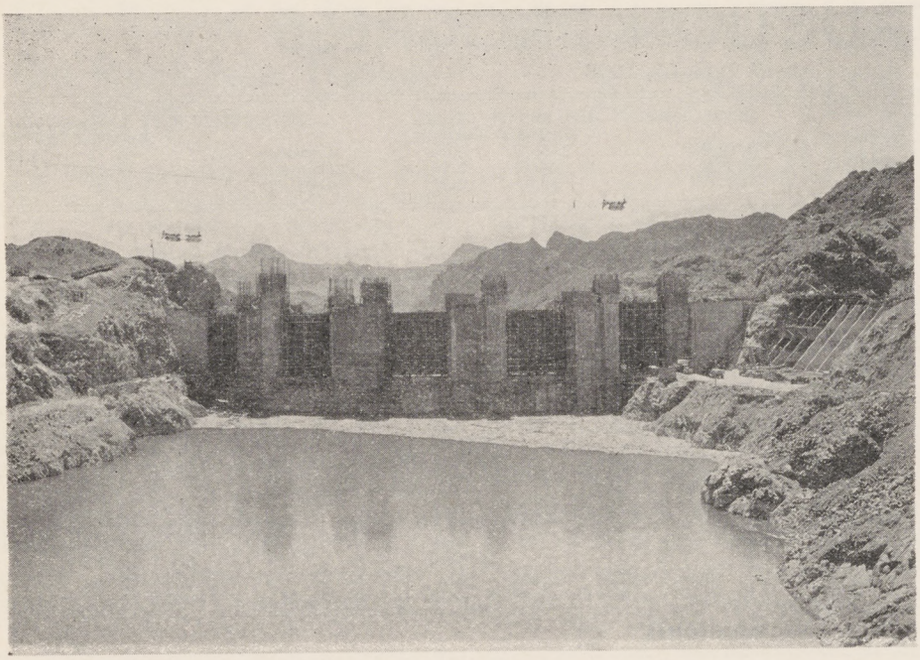
Parker Dam, J. F. Shea Co., Frank Crowe, Gen. Supt., H. P. Bunger, Constr. Eng., U.S.B.R.

Gene Wash dam, Copper Basin dam, J. F. Shea Co., Frank Crowe, Gen. Supt.

(Pumping Plants)
Intake and Gene Winston Bros. and Crowell, R. A. Crowell, Supt.; F. T. Hillman, Engr.

Eagle Mountain, L. E. Dixon Co., J. H. Larkin, Supt.

Hayfield, Dixon and Case, Crawford Strohacker, Supt.



Showing the installation of the five vertical steel gates, this recent view of the upstream face of Parker Dam was taken by the official photographer of the U. S. Bureau of Reclamation.

First Diversion Tunnel Plugged At Parker Dam

Bringing the day closer when the Colorado River will once more be tamed and shackled, Frank Crowe's construction crews at Parker Dam have started work on plugging of the diversion tunnels preparatory to flooding the reservoir basin.

During the week of April 9 a temporary bulkhead was installed at the intake portal of diversion tunnel No. 1 and work was started on placing an earth dike across the outlet portal of this tunnel to permit dewatering and the placing of the permanent concrete plug. Work has also been started on the removal of the lower cofferdam and water is being allowed to rise to river level in the downstream sump. Part of the upper cofferdam will also be removed.

A steel bulkhead will be installed at the upstream portal of the second diversion tunnel which will have gates in it to allow necessary river water to flow downstream for use along the lower Colorado. Surplus water will be held in the Parker Reservoir. May 1 has tentatively been set as the date for starting this flooding of the basin.

On April 16, the placing of mass concrete in Parker Dam was 97 per cent completed.

San Jacinto Crews Make 1,300 Feet April 1 to April 20

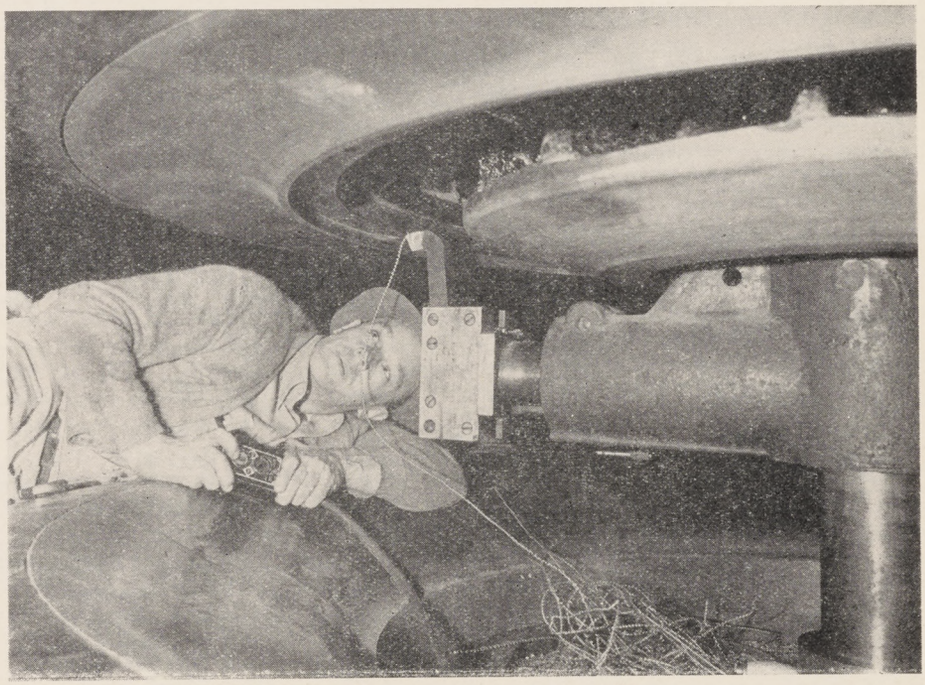
Making the best average daily progress that has been recorded in the San Jacinto tunnel since the time when five main headings were in operation, the hardrockers in that 13-mile bore excavated 1,300 feet from April 1 to April 20.

Lowering the total to be excavated to less than 12,000 feet, the distances remaining on that date were: Cabazon to Lawrence, 3,957 feet; and Lawrence to Potrero, 7,773 feet. During the first 19 days of the month the crews averaged a total of 68.5 feet per day.

On April 20, the Cabazon crews had driven 551 feet for the month. At Lawrence east heading the progress had been 267 feet, and the west face was advanced 111 feet. Potrero reported excellent progress with a total of 371 feet excavated during the period. Application of the slide rule indicates that the daily averages were as follows: Cabazon, 29 feet; Lawrence east, 14.1 feet; Lawrence west, 5.8 feet, and Potrero, 19.5 feet.

During the week ending April 9, the four headings reported a total of 512 feet of progress. On April 9, the Cabazon face was advanced 40 feet. Widening of the plug in Potrero between headings Nos. 1 and 2 was completed on April 15, and the first train ran through this section at 6:45 A.M. on the 16th. Elimination of this barrier permits tunnel traffic to be taken out of the crowded pioneer tunnel which carries water lines and other utilities.

Twelve hundred feet of invert was placed in Potrero east of the entrance to the pioneer tunnel during the period.



General Foreman Jack Schweer controls the operation of a cutting tool which is boring a seat for the seal ring in one of the pumps at Intake. The motor which operates this device is controlled by the start and stop switch in Schweer's hand.

CONSTRUCTION PROGRESS

April 1 to 15, 1938

TUNNEL (MILES)	EXCAVATION Completed	EXCAVATION Remaining	LINING Completed	LINING Remaining
Aqueduct	89.84	2.27	85.36	6.75
Distribution	16.20	0	15.78	0.37
Total	106.05	2.27	101.14	7.12

CANAL, CONDUIT AND SIPHON (MILES)	Completed	Remaining
Excavation	145.60	0.01
Concrete	144.40	0.16
Back Fill	80.47	0.37

DISTRIBUTION PIPE LINE (MILES)	Completed	Remaining
Excavation	47.71	15.98
Concrete	47.62	16.07
Back Fill	47.23	16.46

TUNNELS

AQUEDUCT

CONTRACTOR	TUNNEL	LENGTH IN FEET	EXCAVATION IN FEET: NUMBER OF SHIFTS	AVERAGE PER SHIFT	THIS PERIOD	TOTAL TO DATE	REMAINING	LINING IN FEET: ARCH OR INVERT	NUMBER OF SHIFTS	AVERAGE PER SHIFT	THIS PERIOD	TOTAL TO DATE	REMAINING
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	SAN JACINTO										*(213)	(33,208)	(35,635)
	Cabazon Shaft to East Portal	8,880		Completed		8,880	0	Arch	0	0	0	8,484	396
								Invert	0	0	0	8,484	396
	Cabazon to Lawrence	26,809	45	9.6	431	21,897	4,150	Arch	0	0	0	6,973	19,836
	Lawrence to Cabazon		45	4.3	194	762		Invert	0	0	0	6,972	19,837
	Lawrence to Potrero	17,672	45	1.9	85	420	7,857						
	Potrero to Lawrence		45	7.0	313	9,395		Arch			0	2,386	15,286
								Invert	9	118.1	1063	3,919	13,753
	Potrero Shaft to West Portal	15,482		Completed		15,482	0	Arch	0	0	0	14,953	529
								Invert	0	0	0	15,482	0
	TOTALS Ft.	68,843	180	5.7	1,023	56,836	12,007	Arch	0	0	0	32,796	36,047
	Miles	(13.04)			(0.19)	(10.77)	(2.27)	Invert	9	118.1	1063	34,857	33,986

DISTRIBUTION

CONTRACTOR	TUNNEL	LENGTH IN FEET	EXCAVATION IN FEET: NUMBER OF SHIFTS	AVERAGE PER SHIFT	THIS PERIOD	TOTAL TO DATE	REMAINING	LINING IN FEET: ARCH OR INVERT	NUMBER OF SHIFTS	AVERAGE PER SHIFT	THIS PERIOD	TOTAL TO DATE	REMAINING
WEST CONSTRUCTION CO.	MONROVIA NO. 3			Completed							*(453)	(30,120)	(1,975)
	East from Adit	11,340				11,340	0	Full Sec.	28	15.1	424	12,743	
	West from Adit					5,913		Invert			0	19,352	464
	From West Portal	20,765				14,851	0	Arch	2	18.0	36	16,883	2,469
	TOTALS Ft.	32,105				32,105	0	Full	30	15.1	453	30,120	1,975
	Miles.	(6.08)				(6.08)	0	Section			(0.09)	((5.70)	(0.37)

*Invert considered to equal 0.2 and arch 0.8 of completed section.

Canal, Conduit, Siphon and Pipe Lines

AQUEDUCT

SCHED. NO.	CONTRACTOR	FEATURES	Length In Feet	EXCAVATION—Feet: Period	To Date	Remain'g	CONCRETE—Feet: Period	To Date	Remain'g	BACKFILL—Feet: Period	To Date	Remain'g
16	THOMPSON-STARRETT CO.	Conduit and Siphons	19,346	0	19,346	0	207	19,346	0	186	19,052	294
19	J. F. SHEA CO., INC.	Conduit and Siphons	37,105	150	37,105	0	148	36,995	110	2,502	36,212	893
20 A & B	M. W. D.—FORCE ACCT.	Siphon	752	0	705	47	0	0	752	0	0	752
	TOTALS		57,203	150	57,156	47	355	56,341	862	2,688	55,264	1,939

DISTRIBUTION PIPE LINES

9-P	UNITED CONC. PIPE CORP.	Precast Concrete Pipe	8,697	0	8,388	309	0	8,388	309	0	8,388	309
8C-9C-12C	BASICH BROTHERS	Cast-in-Place Conc. Pipe	1,656	0	864	792	0	673	983	0	480	1,176
21SC	J. F. SHEA CO., Inc	Welded Steel Pipe	28,930	0	0	28,930	0	0	28,930	0	0	28,930
22SC			28,310	0	0	28,310	0	0	28,310	0	0	28,310
23SC			34,470	5,076	8,451	26,019	4,885	8,134	26,336	4,400	6,305	28,165
	TOTALS		102,063	5,076	17,703	84,360	4,885	17,195	84,868	4,400	15,173	86,890

Miscellaneous Construction

PARKER RESERVOIR—SIX COMPANIES, INC.

FEATURES	Est. Quan.	Period	To Date	Percent
Diversion Tunnels—Excav.	3,463 Ft.	0	3,463	100
Diversion Tunnels—Concrete	3,363 Ft.	0	3,363	100
Cofferdams—Excav.	227,582 C.Y.	0	227,582	100
Cofferdams—Fill	464,890 C.Y.	0	464,890	100
Outlet Works—Excav.	220,000 C.Y.	0	207,176	94
Outlet Works—Concrete	5,000 C.Y.	423	4,937	99
Dam—Excavation	1,508,200 C.Y.	0	1,524,436	100
Dam—Concrete	297,900 C.Y.	1,481	287,024	96
Power House—Excav.	58,000 C.Y.	0	56,782	100
Power House—Concrete	14,000 C.Y.	0	15,414	100

GENE WASH RESERVOIR—J. F. SHEA CO., INC.

FEATURES	Est. Quan.	Period	To Date	Percent
Dam—Excavation	7,500	0	7,500	100
Dam—Concrete	14,339 C.Y.	0	14,267	99
Spillway—Excavation	4,762 C.Y.	0	4,762	100
Spillway—Concrete	4,729 C.Y.	0	4,729	100
Dike—Excavation	1,700 C.Y.	0	1,700	100
Dike—Fill	8,700 C.Y.	0	8,300	95
Dike—Concrete	1,200 C.Y.	250	450	38

AQUEDUCT PUMPING PLANTS AND APPURTENANT WORKS

PLANT	CONTRACTOR	PER CENT COMPLETED: Excavation	Concrete	Steel Erect'n
INTAKE	WINSTON BROS. CO. & WILLIAM C. CROWELL	100	100	100
GENE		100	100	100
IRON MT.	WOOD & BEVANDA	100	100	100
EAGLE MT.	L. E. DIXON CO.	100	100	100
HAYFIELD	L. E. DIXON & CASE CONST. CO.	99	89	83

COPPER BASIN RESERVOIR—J. F. SHEA CO., INC.

FEATURES	Est. Quan.	Period	To Date	Percent
Dam—Excavation	8,700 C.Y.	0	8,700	100
Dam—Concrete	17,300 C.Y.	2,900	16,527	95
Spillway—Excavation	8,000 C.Y.	0	8,000	100
Spillway—Concrete	1,973 C.Y.	1,122	1,122	57
Outlet Works—Excavation	Lump Sum	12%	45%	45
Gate House Superstructure				
Clearing Reservoir Site	427 Ac.	34	376	88

First Round Pulled On Rockdale Tunnel April 19

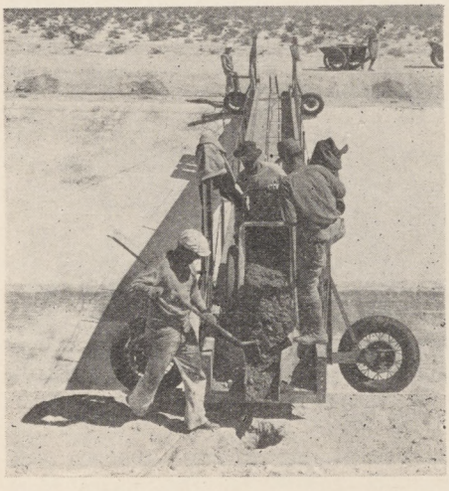
Another aqueduct tunnel was "holed in" on April 19, when the first round was pulled on the Rockdale tunnel on the Palos Verdes cross-feeder of the distribution system. Somewhat smaller than its companions on the main aqueduct, the Rockdale tunnel is 262 feet long and is being excavated to a diameter of 6 feet.

This tunnel is a part of Schedule 21SC, excavation at the north end of which was started in Eagle Rock Canyon on April 11. The work is being done by the J. F. Shea Co., under the direction of Superintendent H. F. "Curly" Rennebohm, who was formerly superintendent on conduit schedules 18, 19, and 20 on the main aqueduct.

Although dwarfed when compared to the diameter and length of some of the other tunnels on the aqueduct, the Rockdale, Oakhill, and Ascot tunnels on the distribution cross-feeder promise to be interesting construction problems—principally because of their limited diameter. The Rockdale tunnel will carry a 55-inch steel pipe line which will be encased in concrete. The Oakhill tunnel will be 597 feet long, and the Ascot tunnel 1,622 feet in length. The latter tunnel will include a 230-foot adit.

SAFETY FLAG AWARDS
San Jacinto Tunnel

Cabazon was awarded the safety flag for the lowest lost-time accident frequency record for excavating operations, and East Portal won the award for the best safety record in concreting operations.



Traveling canal bridge used by the Pittsburgh Steel Co. in handling concrete and other materials used in construction of fence schedule No. 2.

MONTHLY REPORT REVIEWS ACTIVITIES ALONG THE AQUEDUCT LINE

(EDITOR'S NOTE: The following is a brief summary of some of the activities of the District as set forth in the monthly report of General Manager F. E. Weymouth, filed with the Board of Directors in April, covering the work done in March.)

Legal Division

A decision was rendered March 30, 1938, holding that the District had not breached the San Jacinto tunnel contract with Wenzel and Henoch, and is not liable to the contractor in any amount.

Miscellaneous Activities Division

During the month 303 applicants were cleared through the Labor Employment Office. Of this number, 154 were made available for force account work, and 149 were made available for contract work. Identification certificates were issued to 96 applicants, making a total of 25,563 such certificates issued to April 1.

Field Engineering and Construction

Safety Engineering — See safety awards, column one, this page.

Operation of Utilities—During the period February 15 to March 15, 4,925,114 kw. hr. of power was used, 11,184 long distance telephone calls were handled, and 1,288,400 cubic feet of water was delivered. The Colton-Cabazon 66-kv line was washed out at the Santa Ana River and San Gorgonio Wash crossings by the storm of March 2 and 3. However, power service was maintained to all camps through the Colton-Lakeview-Cabazon line, with but minor interruptions.

Aqueduct Construction—At the end of the month the mass concrete in place in Parker Dam totaled 269,928 cubic yards. Concrete for the power-house substructure was completed during the month, with 15,414 cubic yards in place. All concrete work and the grouting of the foundation for the Gene Wash Dam was completed during the month.

Main-heading excavation in the San Jacinto tunnel was advanced 0.20 mile during the month, making a total of 10.57 miles excavated and leaving 2.47 miles yet to be penetrated on March 31.

Civil Engineering Division

Specifications—Bids were opened durin March on four sets of specifications, including No. 272 for the Distribution System headworks.

Design—Work during the month included designs for a connection across San Gabriel River from Monrovia tunnel No. 3 to Morris Dam, including alternative designs for a spillway structure at this river crossing.

Materials—Shipments of cement during the month only totaled 36,000 barrels, being considerably reduced on account of disrupted transportation facilities due to the storm the first week of the month.

Distribution Division

Office Engineering—Shop drawings were checked for the Palos Verdes feeder, Schedule 21, and reinforcement steel lists were prepared for the operating structures between Eagle Rock and 98th Street. Structural-steel drawings and reinforcement-steel lists were prepared for the distribution system headworks structure.

Field Construction — See progress table, page 4. The Hazel road around a part of the Cajalco Reservoir was completed and notice of completion filed on March 28. The suspension bridge to the outlet tower in the reservoir was practically completed during the month.

Electrical Engineering

Office Engineering — Specifications were issued during the month for oil shut-off valve units, liquid level gauges, air compressor units, distribution panel boards, turbine oil, and paving—all in connection with the main pumping plants.

Field Construction — See progress table, page 4. (See story, page 2, regarding completion of Intake, Gene, and Eagle Mountain plants.) The contractor at the Hayfield plant completed the erection of the structural steel for the pump house superstructure, and form work for the first lift was well underway.

Personnel Division

The net turnover for all positions for February was 2.96 per cent.

Purchasing Division

A total of 1,520 purchase orders was issued, covering purchases amounting to approximately $190,600. Carload forwardings totaled 193.

Accounting and Costkeeping

The total cost of the work accomplished to March 31, 1938, was $161,739,772.

Aqueduct Source

WHY THE COLORADO RIVER WAS SELECTED AS THE SOURCE OF SUPPLY

By F. E. WEYMOUTH
General Manager and Chief Engineer, M. W. D.

Southern California has just passed through a flood of almost record proportions—certainly a greater flood than any remembered by most of the "old-timers." Great volumes of water rushed down across orchards and fields, and through cities, causing great damage; and finally wasted into the ocean. Thousands of acre feet flowed over or under the Colorado River Aqueduct in a mad rush to the sea. It is natural that the public should become flood-minded and that many should ask: "Why a Colorado River Aqueduct—why not, instead, conserve these flood waters?" The answer, of course, is that it is necessary to do both.

Hydrographic Engineer C. C. Elder, in the April 10, 1938 issue of the "News" calls attention to the significant fact that a record flood year in Southern California yields less rainfall than the worst drought year in a humid region. Hence, such a year fails to meet even the current needs of the area as a whole, although a few spots are temporarily deluged with unwanted water. Also, these years come only occasionally, with long periods of famine years between. Saving flood waters never can bring the available supply fully up to the 15-inch long-time average, which is far too little even for present developments, and entirely inadequate for ultimate needs.

Much already has been done on conservation, and additional works are planned for the near future. Only negligible portions of ordinary floods waste into the ocean now. Conservation is largely by "spreading," i. e., the surplus waters are spread over waste rocky areas and permitted to percolate into underground storage, to be later removed by pumping. Obviously, a vast flood such as that recently experienced cannot be guided into a few small absorbing basins and put under ground, as it comes down from the mountains. At such times, even the rain falling on the flat valley floor cannot be held until fully absorbed, but much of it must be rushed away to the sea to reduce damage by flooding. The cost of completely conserving such a flood would be great and, because they occur only rarely, the average addition to the annual water budget would be small. Such floods must be controlled to reduce property damage, and should be conserved as fully as practicable; but it is difficult to avoid a little waste into the ocean at rare intervals. Such wastage will have a negligible average effect on available water supplies, hence in all studies of ultimate water resources and needs, practically complete conservation is assumed. But conservation of local floods is not sufficient.

It has long been recognized that the water needs of Southern California cannot be supplied from local sources. The fertile habitable lands are closely encircled by a narrow ring of hills. The area subject to intensive development is approximately half the total area of the drainage basin, an unusually high proportion. There are no long rivers bringing in water from distant points. The areas immediately outside of the encircling hills are arid and produce no exportable water, for which reason it is necessary to go long distances for additional supplies. The nearest area of high rainfall lies to the north in the high Sierras. That area drains generally to the west into the San Joaquin and Sacramento valleys, where all flows are over-appropriated for local needs. Because of precipitous slopes, the catchment areas on the eastern side of the Sierras are limited and stream flows are smaller than on the western side, but due to unfavorable settlement conditions, these waters have been less completely absorbed by local developments.

It was natural that the City of Los Angeles, finding its water resources nearing exhaustion some thirty years ago, should look to the Sierras for a supplemental supply. After careful study of all possibilities, water rights were acquired in the Owens Valley, along the eastern slope of the mountains, and the Owens River Aqueduct, 233 miles long, was constructed. This aqueduct was completed in 1913 and with the Mono Basin extension now under construction is capable of delivering 450 second feet of water into the city. Water from this source, although limited in use to the area within the City of Los Angeles, has played an important part in the development of Southern California, and its past and future value can hardly be over-estimated. However, this outside supply is inadequate for the future needs of the basin or even of the City of Los Angeles.

No further important unappropriated flows are available from the Sierras, within a reasonable distance. Accordingly, the Metropolitan Water District is now going to the Colorado River, which taps the snow fields of the Rocky Mountains in Colorado, Wyoming, and Utah, and flows within the reach (although somewhat long reach) of the metropolitan area. The natural low flow of this river is fully appropriated, but the United States Government has constructed a dam at Boulder Canyon which will store flood water and thus greatly increase the useful flow. This dam, which has the unprecedented height of 727 feet from foundation to crest, creates a reservoir having storage capacity of 30,500,000 acre feet. The primary purposes of the reservoir are flood control and the conservation of water. Incidentally, it affords opportunity for the development of from 4,000,000,000 to 6,000,000,000 kilowatt-hours of electrical energy per annum.

Records of flow made over a long period show that when properly controlled and conserved, the waters of the Colorado River are ample to supply the needs of the Metropolitan Water District without disturbing any existing rights. There is available no other source of supply suitable in quality and quantity. Fortunately, Colorado River water can be brought into the District at a reasonable cost.

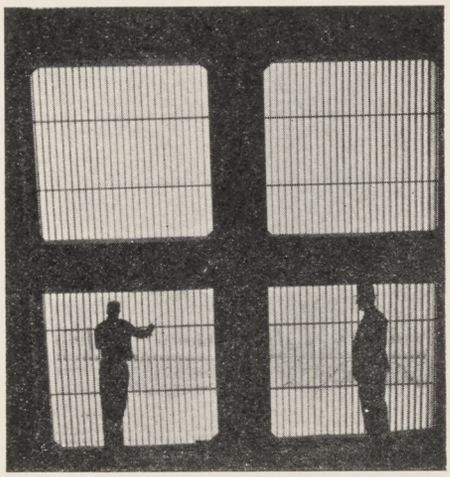
The quality of Colorado River water and its acceptability for the many uses for which it is likely to be required have been carefully investigated. The lower Colorado in its natural state was notoriously muddy—"A little too thick to drink, and a little too thin to plough" according to legend—however, water now stored in Boulder Reservoir is entirely clear and exceptionally free from bacterial pollution. In mineral content it compares favorably with other waters in Southern California. Its suitability for domestic and agricultural uses is demonstrated by its long and successful use in the Imperial Valley and on the Yuma Project in Arizona.

The District has filed on a diversion of 1,100,000 acre feet annually from the Colorado River at the Parker dam site, under the laws of the State of California, and has entered into a contract with the United States Government for the delivery of this amount of water from the Boulder Reservoir. The rights thus secured are further fortified by signed agreements between the District and other prospective users as to the division of the waters of the river. The District likewise has entered into a contract with the government for the power from Boulder Dam that will be required to pump Colorado River water over the mountains and into the District area.

NEWS FROM FIELD AND OFFICE

First he lost all but one of the pretty little asterisks (* this is it), and then the office boy "pied" the type, with the result that by the time the field and office notes were unscrambled it was too late to fix 'em up nice and neat.

In the first place, the story that was to go in this space ( ) got lost. 'Stoo bad, too, because it had the answer to Dick Stephens query about the number of "ughs" in the 5-hp motors at Parker Dam. . . Speaking of "ughs," however, brings up the subject of "Casey at the Bat," which in turn brings up the big sporting news of the moment. . . The M.W.D. Hardrock Nite Ball League. Leading off with J. L. Burkholder pitching the first ball and B. C. Leadbetter catching it (?), teams from East Portal and the Banning Headquarters will start off the San Jacinto World Series at 7:30 P.M. on May 3 at Kendall field. . . Orchids (Pat. Pend.) are in order for the Banning merchant who donated the field for the hardrockers' night ball games. Following the opener on May 3, two games a week will be played. Made up of five teams, one from each tunnel camp and one from the Banning headquarters, the league will split its season into two halves. . . May 3 to June 2, and June 7 to July 7. Winner of the first half to play a three-game series with the winner of the second half to decide the championship. There will be no admission, but you'd better get your seat early —and wear your hard hat.



This picture might well be titled "the Big House, or Crime Does Not Pay." Actually, it shows Carl Heilbron of the L. A. Design Division, and W. H. Holmes, State Engineer for Dams, peering through the bars of the Intake plant trash rack. Si Perliter, also of the Design Division, snapped this interesting view.

Aqueduct Temperatures

April 1 to April 15, 1938

	Max.	Min.
Div. 1	90°	48°
Div. 2	87°	49°
Div. 3	89°	50°
Div. 5	78°	35°

The office boy has a pencil note here that "it's too bad they haven't set their schedule to end on July 20, because at noon on that date they're gonna hole through between Cabazon and Lawrence." Of course a pencil pusher can pick the date on the nose, whereas just a mere hardrocker on the job, or even a shifter, or tunnel super, or even the general superintendent, wouldn't dast predict the date of the holing through. Anyhoo, Jim Henry, (he helped fix up the nite ball schedule) don't say you weren't warned.

The pretty picture of "the Big House" taken by Si Perliter formally announces an Aqueduckers Amateur Photo Contest sponsored by the Employes Association. Knowing that there are a lot of camera fans on the job who are taking excellent pictures, the association is going to offer prizes for the best pictures submitted between now and December 15, 1938. The contest is open to anyone connected with the job, and picture subjects may deal with anything or anyone that is associated with the aqueduct. The best of these pictures will be printed from time to time in the NEWS, and at the end of the year a committee of judges will pick the winners from among those published. The prizes, either cash or orders for photographic equipment, will be announced in the near future. Pictures should be sent to the AQUEDUCT NEWS.

Yuma reports the marriage in that city on April 7 of Katherine Ingalls, of San Jacinto, and Walter Evans. "Walt" Evans is an employe of the Shea Co. on the main aqueduct.

Aqueduct employes may purchase tickets, at 10 per cent discount, for the Los Angeles Civic Light Opera season, through the Employes Association. The season runs from the week of May 16 to the week of June 6, inclusive,

Col. Jamieson, Labor Employment Officer for the M.W.D., reports the following incident which happened in his office on April 15, as gospel truth. Two young men seeking employment entered the office and were interviewed by Capt. Twyman.

One of the young men asked, "Do you want miners?"

Capt. Twyman, "Yes."

Young Man, "Come on Jim, that's right down our alley."

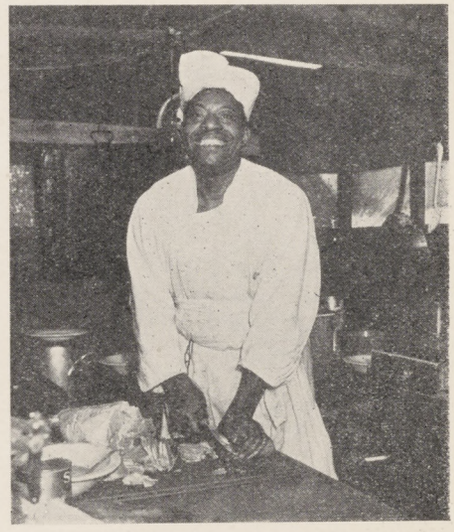
Capt. T., "Wait a minute, where did you get mining experience?"

Y. M., "Who said anything about mining experience? You said you wanted minors. We're both under 21."

Curtain.

Ex-aqueducker R. H. "Bob" Lindsey, formerly office engineer at Div. 3, is now associated with the Home Modernization Co. at 2360 W. Pico Blvd., Los Angeles. He's specializing in building new homes and modernizing old ones. . . Just as the NEWS prints his picture, looking through the bars at Intake, Carl Heilbron resigns from the District (April 16) to become an Associate Engineer on Dam Design for the U. S. Engineer's office in Los Angeles. He has been in the M.W.D. Design Division since November 15, 1933.

In listing the aqueduckers who are personally interested in the Spanish Civil War (NEWS, April 10), the name of the M.W.D. Chief of Audits, Gregory Smith, should have been included. He was chief field accountant on the construction of the Spanish hydroelectric projects referred to, from 1912 to 1917.



Response to "the Call of the Wild" is but a gentle zephyr compared to the hurricane that blows into the mess hall when this man sings out "Come and get it." He is A. J. Tullis, cook on the Pittsburgh Steel Co. fencing job. Old-timers will remember him on the Coachellas at Berdoo and other camps on that tunnel job.

AQUEDUCT HISTORIAN REVEALS FACTS ON WATER USES

In connection with his paper on the "Need for Water" in the last NEWS, Hydrographic Engineer C. C. Elder delved into the past to support his contention that civilization is increasing personal water demands. Revealing the demands due to the rising standard of living, able historian Elder states:

"Peter the Hermit, who led the First Crusade at the end of the 11th Century, thanked God that water had not touched his body in 40 years. As a monk, and a soldier, his aversion to water may not have been typical, but Isabella, the most famous queen of her century, boasted that she had but two baths in her life—once when she was born and the other when she married Ferdinand. Doubtless a third may be assumed, after she could no longer protest, but only queens seem to have indulged in even three baths per lifetime. Less than a century ago, American cities' statutes guarded their citizens' health against winter baths, or more than one per week except on a doctor's certificate. Andrew Jackson's first act as President is said to have been to throw Dolly Madison's tin tubs and water heater out of the White House, on the ground that they were offensive to common people.

"But now the bath has been made safe for Democracy, and a 'swimming pool for every home', as a motto seems likely to replace the 'chicken in every pot' or 'two cars in each garage' slogans."

CONTRACT WORK NEARLY COMPLETED ON PUMP PLANTS

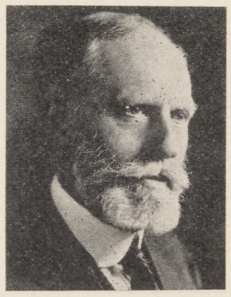
(*Continued from Page 2*)

the direction of District Construction Supt. R. C. Booth, who is also in charge of the work at the Hayfield plant. The Eagle Mt. plant will pump water up the side of a sheer cliff a height of 438 feet. Erection of the delivery line was subcontracted to the Western Pipe and Steel Co., the main 10-foot line being 770 feet long and connected to the pumps by three 6-foot lines totaling 388 feet in length.

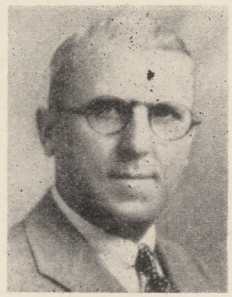
Contract work included the placing of 27,800 cubic yards of concrete and erection of 2,285 tons of steel.

Although only three pumps are being installed in each plant at the present time, the ultimate development of the aqueduct will require nine units in each plant. These pumps each have a capacity of 200 cubic feet of water per second, or approximately 90,000 gallons per minute. Installation of equipment in the plants is being carried forward as a force account job.

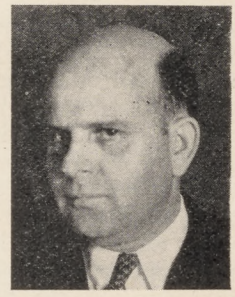
Who's Who On the Aqueduct



Charles H. Toll



Arthur P. Creel



Charles T. Rippy

CHARLES H. TOLL

Treasurer, Metropolitan Water District

Born November 24, 1858, in Clinton, Iowa. . . Attended Cornell College, Mt. Vernon, Iowa. . . 1881-1882, Deputy Clerk of Court, Clinton, Iowa. . . 1883-85, Deputy Postmaster, Clinton, Iowa. . . Came to California, September 8, 1885. . . Retail grocery, and real estate business in Los Angeles, 1885-88. . . Credit Manager, Hellman, Hass and Co., and Haas, Baruch and Co., 1888-1894. . . Member of Los Angeles City Council, 1896-1900. . . Cashier Southern California Savings Bank, 1900-1907. . . Vice President Security Trust and Savings Bank, 1907-1929. . . Vice President Security-First National Bank of Los Angeles, 1929 to date. . . Mr. Toll was a member of the first Water Board of the City of Los Angeles. . . Was appointed Treasurer of The Metropolitan Water District September 30, 1929. Is ex-officio member of Advisory Council of the Board of Directors of the M.W.D. . . Is married and has four sons. . . Hobby is stamp collecting.

ARTHUR P. CREEL

Member of the Board of Directors, Representative of Santa Monica.

Born September 16, 1886, in Carrollton, Carroll County, Missouri. . . Moved to Oklahoma City, Oklahoma when four years old. . . Attended high school and business college in Shawnee, Oklahoma. . . After leaving school entered the mercantile business as a clerk, moving to Carnegie, Oklahoma in 1908, where he established his own business. . . Remained in the mercantile business until 1920. . . During the World War was Assistant Food Administrator for Western Oklahoma. . . Served as Mayor of Carnegie, Oklahoma 1918-19. . . Came to California in the spring of 1921, entering the real estate and building business in Santa Monica, having specialized in the development of business properties, among them the Branson and Creel Building, San Fernando, the Builders Exchange Building, Santa Monica, and the Central Tower Building, Santa Monica. . . Vice President of the American National Bank, Santa Monica, from 1925 to 1930. . . Was President of the Santa Monica Bay District Realty Board in 1936. . . Vice President of the California Real Estate Association in 1937. . . Director of the Chamber of Commerce. . . Scottish-Rite Mason and member of the Shrine. . . Appointed to the Board of Directors of the Metropolitan Water District in December, 1936. . . Married. . . Likes horses and enjoys riding.

CHARLES T. RIPPY

Member of the Board of Directors, Representative of Torrance.

Born Union City, Tenn., May 15, 1896. . . Received degree of LLB. at National University of Washington, D. C. . . Member of Bar of District of Columbia since 1918. . . Admitted to practice before Supreme Court of District of Columbia 1918. . . Member of Bar of State of California since 1924. . . Admitted to practice before U. S. District Court, Southern Division. . . In 1916 was assistant secretary to Senator John K. Shields, Washington, D. C. . . 1916-1918, Secretary to Director of Labor Relations United States Shipping Board. . . 1918-20, Admiralty in Common Law Division, U. S. Shipping Board. . . 1920-21, Realty broker, Philadelphia. . . Secretary and Director, Torrance, Calif., Mutual Building and Loan Association, 1924 to date. . . Director, Torrance National Bank, 1924 to date. . . City Judge of Torrance, 1925-1936. . . City Attorney, Torrance, 1936 to date, and in private law practice in that city from 1924 to date. . . Member of Board of Directors, M.W.D., since January, 1934. . . Member of Legal Committee. . . Married and has two children.